

1 What is claimed is:

2 1. An integrated motor winding changeover switch for a multiphase motor, comprising:

3 a contact bar having a first plurality of contact points connected in common and a second

4 plurality of contact points electrically isolated from said first plurality of contact points;

5 a plurality of stator winding comprising a first plurality of stator winding terminals each

6 connected to a movable contact member and adapted to make electrical contact with said first

7 plurality of contact points or said second plurality of contact points, respectively;

8 a second plurality of stator winding terminals each connected to said second plurality of

9 contact points; and

10 a controllable movable bar having said movable contact members affixed thereto, said

11 moveable bar being controlled to move said contact members with respect to said contact bar to

12 electrically connect or isolate said first plurality of stator winding terminals and said second

13 plurality of stator winding terminals.

14 2. A switch as claimed in claim 1, wherein said controllable movable bar having a first

15 position connecting said first plurality of stator winding terminals to said first plurality of

16 contacts via said contact members, and a second position connecting said first plurality of stator

17 winding terminals to said second plurality of contacts via said contact members.

18 3. A switch as claimed in claim 2, wherein said first position causing said first plurality of

19 stator winding terminals to be connected in common and electrically isolated from said second

20 plurality of stator winding terminals, and said second position causing said first and second

21 plurality of stator winding terminals to be connected in series.

22 4. A switch as claimed in claim 3, wherein said plurality of stator windings comprise three

23 stator windings forming a three phase motor, and said first position forming said stator windings

1 into a wye configuration, and said second position forming said stator windings into a delta
2 configuration.

3 5. A switch as claimed in claim 1, wherein controllable movable bar comprising an
4 elongated bar member formed of a ferromagnetic material having said contact members affixed
5 thereto, a biasing device causing said elongated bar to move in a predetermined direction, and a
6 controllable solenoid magnetically coupled to said elongated bar member to move said bar
7 member in a direction opposite to said biasing device.

8 6. A switch as claimed in claim 5, wherein said biasing device is a spring.

9 7. A switch as claimed in claim 5, wherein said biasing device is a bistable spring.

10 8. A switch as claimed in claim 5, wherein said biasing device is a second solenoid
11 magnetically coupled to said bar member.

12 9. A switch as claimed in claim 1, wherein said plurality of stator winding comprise three
13 stator winding forming a three phase motor, said controllable movable bar being controlled to
14 electrically couple said first and second plurality of stator winding terminals to form a delta
15 configuration of said stator windings, and further being controlled to electrically couple said first
16 plurality of terminals together and electrically isolate said first plurality of terminals from said
17 second plurality of terminals.

18 10. A switch as claimed in claim 9, wherein said movable bar being controlled by control
19 signals indicative of torque information related to a motor formed by said plurality of stator
20 windings.

21 11. A switch as claimed in claim 9, wherein said movable bar being controlled by control
22 signals indicative of speed information of a motor formed by said plurality of stator windings.

23 12. An integrated three phase motor and motor winding changeover switch, comprising:

1 a motor housing comprising a three phase motor including three stator windings each
2 comprising winding terminals on each side of said windings, and a controllable switch to couple
3 or isolate said winding terminals to form a delta configuration or a wye configuration, said stator
4 windings and said switch formed within said motor housing; and
5 a controller generating a control signal for controlling said switch to couple or isolate said
6 winding terminals.

7 13. An integrated motor as claimed in claim 12, further comprising three power cables and a
8 control line cable coupled between said controller and said motor housing for controllably
9 delivering three phase power and said control signal to said motor.

10 14. An integrated motor as claimed in claim 12, said switch comprising a controllable
11 movable bar having said movable contact members affixed thereto, said moveable bar being
12 controlled to move said contact members with respect to said contact bar to electrically connect
13 or isolate said winding terminals to connect said windings in a delta or wye configuration.

14 15. An integrated motor as claimed in claim 14, wherein said controllable movable bar
15 comprising an elongated bar member formed of a ferromagnetic material having said contact
16 members affixed thereto, a biasing device causing said elongated bar to move in a predetermined
17 direction, and a controllable solenoid magnetically coupled to said elongated bar member to
18 move said bar member in a direction opposite to said biasing device.

19 16. An integrated motor as claimed in claim 15, wherein said biasing device is a spring.

20 17. An integrated motor as claimed in claim 15, wherein said biasing device is a bistable
21 spring.

22 18. An integrated motor as claimed in claim 15, wherein said biasing device is a second
23 solenoid magnetically coupled to said bar member.

1 19. An integrated motor as claimed in claim 15, wherein said movable bar being controlled
2 by control signals indicative of torque information related to a motor formed by said plurality of
3 stator windings.

4 20. An integrated motor as claimed in claim 15, wherein said movable bar being controlled
5 by control signals indicative of speed information of a motor formed by said plurality of stator
6 windings.